

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE APPLICATION OF:

CONFIRMATION NO. 9545

DONALD L. RYMER ET. AL.

CASE NO.: AD6856 US PCT

SERIAL NO.: 10/501,598

GROUP ART UNIT: 1796

FILED: JULY 13, 2004

EXAMINER: WILLIAM K. CHEUNG

FOR: LOW-COLOR PVB SHEET AND A PROCESS FOR MAKING SAME

REVISED DECLARATION UNDER 37 CFR1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Donald L. Rymer, declare and state:

I am a named co-inventor on the subject patent application and am an employee of E. I. du Pont de Nemours and Company (DuPont), the assignee of the subject patent application.

In 1966 I was awarded a Bachelor of Science degree in Chemistry from Salem College.

In 1968, I was awarded a Master of Science degree in Organic Chemistry from Ohio University in Athens, Ohio.

I have worked for DuPont for over 39 years in a variety of manufacturing technology and research assignments.

I am currently a Technology Fellow conducting product and process research for the Packaging and Industrial Polymers (P&IP) business and work in the field of poly (vinyl butyral) (PVB).

I have worked in the PVB field for over 30 years developing polymer syntheses, troubleshooting manufacturing problems, and improving our product as it is incorporated as an interlayer in glass laminates.

I have been a lead technology person in starting up PVB labs and processes outside the U.S. and continue to be involved in the design of new products.

I am also a named co-inventor on the following patent applications:

Patent/Publication Number	Grant/Publication Date	Official Title (English)
US-2006-0183833-A1	08/17/2006	LOW-COLOR STIFF PVB LAMINATES
US-2005-0288429-A1	12/29/2005	A PROCESS FOR CONTROLLING POLYVINYLBUTYRAL PHYSICAL PROPERTIES BY CONTROLLING STEREOCHEMISTRY OF SAME
US-2005-0234185-A1	10/20/2005	POLYVINYLBUTYRAL INTERLAYER SHEET WITH IMPROVED ADHESION TO GLASS AND A PROCESS FOR PREPARING SAME
US-2006-0008648-A1	01/12/2006	POLYVINYLBUTYRAL INTERLAYERS HAVING SUPERIOR ACOUSTICAL PROPERTIES AND METHOD OF PREPARING SAME
US-2008-0157426-A1	07/03/2008	PROCESS AND APPARATUS FOR REDUCING DIE DRIPS AND FOR CONTROLLING SURFACE ROUGHNESS DURING POLYMER EXTRUSION

The claims of the subject application are directed to a process for preparing a low color, polyvinyl butyral sheet for use in the manufacture of glass laminates. Claim 1 is typical of the independent claims and recites as the first two steps:

- (I) admixing polyvinyl alcohol, butyraldehyde, an acid or mixture of acids, water, and sodium dialkyl sulfosuccinate;
- (II) stabilizing the mixture obtained in step (I) by (a) raising the pH of the mixture to at least pH 10, (b) isolating the polyvinyl butyral resin composition by draining the liquid, and (c) washing the polyvinyl butyral resin composition with neutral pH water;

I am aware that the claims of the subject patent application stand rejected under 35 USC 103(a) as obvious over a number of patent documents including Degeilh (US 4,696,971). Degeilh teaches that the described process should be carried out with sodium dialkyl sulfosuccinate and neutralizing to pH of no more than 5.

All of the work described herein was carried out by me or under my supervision.

I have observed two PVB laminates made from PVB produced by DuPont using sodium dioctyl sulfosuccinate (DOSS) and different pHs. The first one was made with a flake neutralized at a pH of 10.2 as claimed. The second one is a comparative PVB laminate where the flake used to produce the material was neutralized at a pH of 8.5.. Both were made using DOSS and were made on the same equipment using the same parameters (except neutralization was carried out to the pHs described) by the following steps:

- (1) admixing polyvinyl alcohol, butyraldehyde, an acid or mixture of acids, water, and sodium dioctyl sulfosuccinate;
- (2) stabilizing the mixture obtained in step (1) by (a) raising the pH of the mixture to 10.2 (invention examples) or 8.5 (comparative example), (b) isolating the polyvinyl butyral resin composition by draining the liquid, and (c) washing the polyvinyl butyral resin composition with neutral pH water;
- (3) drying the PVB resin and extruding the PVB resin with plasticizer and additives at a temperature of from about 209C to about 210C to obtain PVB sheeting.

The flake neutralized at the two different pH levels was extruded into sheeting using the process described in US 3,153,009 Example (III). From this sheeting standard glass laminates were prepared and examined for clarity.

When each sample was viewed by me, my observation was that the invention sample was very clear. The comparative sample showed defects. These differences were magnified when viewed under high intensity light, which is common windshield test used in the industry to observe clarity.

The samples were also evaluated under a microscope using UV light and counting and sizing device. Attached is a graph showing the gel counts. The lighter line (blue) to the left, when present, represents the invention and the darker line (red) (to the right) represents the comparative sample. The comparative sample had larger amount and larger size gel particles than the sample representing the invention. Higher quantities of and larger sized gel particles are unacceptable because they are easier to see and scatter light.

Given the above, it is my opinion that the invention, which involves use of sodium dialkyl sulfosuccinate (e.g., DOSS) and neutralizing to pH or at least 10, provides better clarity laminates than laminates prepared from PVB sheet made using a process involving sodium dialkyl sulfosuccinate and a neutralization step at lower pHs. The better clarity obtained with the claimed invention would not be expected based upon the Degeilh and the other documents cited in the rejections.

All statements made herein of my own knowledge are true, all statements made herein based on information and belief are believed to be true, and further that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,

/Donald L Rymer/
Donald L. Rymer

Dated: January 27, 2009

Attachment - Gel Counts of PVB Laminates

